IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

Appl. No. : 10/687,213
Applicant(s): Lance A. TATMAN et al.
Filed: October 15, 2003
TC/A.U.: 2616
Examiner: Kevin C. Harper
Atty. Docket: 10030378-1
Confirmation No.: 7146

Title: METHOD AND SYSTEM FOR CENTRALIZED COLLECTION LINK STATE ROUTING PROTOCOL DATA

APPEAL BRIEF

Honorable Assistant Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In connection with the Notice of Appeal dated April 21, 2008, Applicants provide the following Appeal Brief in the above-captioned application.

TABLE OF CASES

1. ***KSR Int'l Co. v. Teleflex Inc.,*** **127 S. Ct. 1727; 82 U.S.P.Q.2D 1385 (2007).**

2. ***Graham v. John Deere Co.*****, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).**

3. ***Monroe Auto Equipment Co.*** **v.** ***Heckethorn Mfg. & Supply Co.*****, 332 F.2d 406, 412 (CA6 1964).**

4. ***Ex parte Crawford, et al.*****, Appeal 20062429, May 30, 2007.**

1. Real Party in Interest

The real party in interest as assignee of the entire right and title to the invention described in the present application is Agilent Technologies, Inc., having a principle place of business at 5301 Stevens Creek Blvd, Santa Clara, CA USA.

2. Related Appeals and Interferences

There are no known related appeals or interferences at this time.

3. Status of the Claims

Claims 1, 4, 5 and 8-18 are pending in this application. No claims are withdrawn from consideration. Claims 1, 4, 5 and 8-18 are the subject of the present Appeal. Claims 1, 4, 5 and 8-18 are finally rejected, and are duplicated in the Appendix.

4. Status of the Amendments

A final Office action on the merits was mailed on December 27, 2007 (hereinafter "Final Office Action"), in response to which Applicants filed an Amendment and Response under 37 C.F.R. § 1.116 (hereinafter "After Final Response"). A subsequent Advisory Action was subsequently mailed on March 27, 2008 (hereinafter "Advisory Action"), which entered the proposed amendments of the After Final Response for purposes of appeal.

There are no pending amendments with respect to this application.

5. Summary of the Claimed Subject Matter[1]

In accordance with an embodiment, an autonomous system (Fig. 2, 200) includes two or more areas (Fig. 2, 202-206), wherein each area includes a router (Fig. 2, 208-222;

[1] In the description to follow, citations to various reference numerals, drawings, and corresponding text in the specification are provided solely to comply with Patent Office rules. It is emphasized that these reference numerals, drawings, and text are representative in nature, and not in any way limiting of the true scope of the claims. It would therefore be improper to import anything into any of the claims simply on the basis of illustrative language that is provided here only under the obligation to satisfy Patent Office rules for maintaining an Appeal.

page 5, lines 6 – 11), and a probe (Fig. 2, 224) logically connected to the router in each area and configured to receive link state routing protocol data from the router (Fig. 2, 208-22) in each area (Fig. 2, 202-206), when the router in each area floods the link state routing protocol data throughout the autonomous system (Fig. 2, 200). (Kindly refer to page 5, line 6 – page 6, line 20, as well as claim 1 and Figs. 2-4, for further details.)

In accordance with another embodiment, a system for monitoring link state routing protocol data (Fig. 2, 200) includes two or more areas to be monitored (Fig. 2, 202-206), wherein each area includes a router (Fig. 2, 208-222); and a probe (Fig. 2, 224) logically connected to and at least partially adjacent to the router (Fig. 2, 208-222; page 5, lines 6 – 11; page 6, lines 5-20) in each area (Fig. 2, 202-206) and configured to receive link state routing protocol data from the router (Fig. 2, 208-222; page 5, lines 17-29) in each area (Fig. 2, 202-206) when the router (Fig. 2, 208-222) in each area floods the link state routing protocol data (page 7, lines 21-26) throughout the autonomous system (Fig. 2, 200). (Kindly refer to page 5, line 6 – page 6, line 20, as well as claim 5 and Figs. 2-4, for further details.)

In accordance with another embodiment, a method for centralized collection of link state routing protocol data from a plurality of areas (Fig. 2, 202-206) (Fig. 5) includes selecting a router (Fig. 2, 208-222) (Fig. 5, 500) in each area (Fig. 2, 202-206) from which to collect link state routing protocol data corresponding to the area (Fig. 2, 202-206); and establishing a logical connection and at least partial adjacency between the selected router (Fig. 2, 208-222) in each area and a probe (Fig. 2, 224; page 6, lines 5-20) (Fig. 5, 502-504) to allow the probe to receive the link state routing protocol data from the selected router in each area (Fig. 2, 202-206). (Kindly refer to page 7, line 27 – page 10, line 20, as well as claim 11 and Figs. 5-8, for further details.)

6. Grounds of Rejection to be Reviewed on Appeal

The issues in the present matter are whether:

I. Claims 1 and 4 are properly rejected under 35 U.S.C. § 103(a) as being unpatentable over *Goringe et al.* (U.S. Patent Application Publication No. 2003/0043820).

II. Claims 5 and 8-18 are properly rejected under 35 U.S.C. § 103(a) as being unpatentable over *Goringe et al.* in view of *Greenberg et al.* (U.S. Patent Application Publication No. 2007/0165546).

7. Argument

In this portion of the Appeal Brief, arguments are provided. Notably, wherever applicable, Applicants maintain previous arguments for patentability provided in responses to Office Actions.

I. Rejection under 35 U.S.C. § 103(a)

Claims 1 and 4 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Goringe et al.* (U.S. Patent Application Publication No. 2003/0043820).

A. Legal Standards

Applicants rely at least on the following standards with regard to proper rejections under 35 U.S.C. § 103. As provided in MPEP § 2143, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art cited must teach or suggest all the claim limitations.

In addition, under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. While the sequence of these questions might be reordered in any particular case, the factors continue to define the inquiry that controls. If a court, or patent examiner, conducts this analysis and concludes the claimed subject matter was

obvious, the claim is invalid or unpatentable under § 103. *KSR Int'l Co. v. Teleflex Inc.,* 127 S. Ct. 1727; 82 U.S.P.Q.2D 1385 (2007), citing, in part *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

However, the Court in *KSR* continued: "A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. *See Graham*, 383 U.S., at 36, 86 S. Ct. 684, 15 L. Ed. 2d 545 (warning against a "temptation to read into the prior art the teachings of the invention in issue" and instructing courts to "'guard against slipping into the use of hindsight'" (quoting *Monroe Auto Equipment Co.* v. *Heckethorn Mfg. & Supply Co.*, 332 F.2d 406, 412 (CA6 1964)). Moreover, if there is no suggestion to combine the teachings of the applied art, other than the use of Applicants' invention as a template for its own reconstruction, a rejection for obviousness is improper. *Ex parte Crawford, et al.*, Appeal 20062429, May 30, 2007.

B. Final Office Action and Advisory Action

i. Independent Claim 1

Claim 1 is drawn to an autonomous system and features:

"two or more areas, wherein each area includes a router; and a probe logically connected to the router in each area and configured to receive link state routing protocol data from the router in each area when the router in each area floods the link state routing protocol data throughout the autonomous system."

In rejecting claim 1 under 35 U.S.C. § 103(a), the Final Office Action states, in part:

> [O]ne skilled in the art would recognize that link start [sic] flooding in a network is performed by routers and other network devices to exhaustively discover network topology (para.7, lines 7-11), albeit at a disadvantage of potentially transmitting a higher number of link state messages. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to flood a network with link state data because

> one skilled in the art would recognize the predictable result that all network devices will receive the link state data to provide network topology …."

Final Office Action, p. 3.

Goringe et al. does not disclose a system that floods the network with link state routing protocol data. Rather, the system of *Goringe et al.* identifies and queries only "certain routers, such as area border routers, which contain the information necessary to permit a routing or network topology to be generated." *See* paragraph [0010]; *see also* paragraphs [0023], [0029] and [0033]. Further, *Goringe et al.* specifically teaches away from this feature, stating that flooding the network (i.e., with ping commands) should be avoided because it "not only interferes with the operational efficiency of the network but also require[s] an extensive use of computational resources to analyze the vast amount of received information." *See* paragraph [0010]. As applied to the present application, querying certain routers, as disclosed by *Goringe et al.* leads in a different direction than flooding link state routing protocol data through the system, as recited in claim 1, and thus a line of development flowing from the *Goringe et al.* disclosure would unlikely be productive, and thus not obvious, with respect to at least this feature.

Therefore, *Goringe et al.* does not teach or suggest a probe connected to a router in each area and configured to receive link state routing protocol data from the router in each area when the routers flood the link state routing protocol data through the autonomous system.

In addressing Applicants' argument, the Examiner stated, in part:

> [T]he determination of obviousness is based on combining prior art elements that achieve predictable results. Because Goringe discloses the prior art of the art as providing flooding within a network, one skilled in the art would recognize sending messages to all routers (para. 7, lines 7-8) would have the predictable result of providing an autonomous topology determination (para. 5) and providing a detailed map of the network (para. 6, lines 1-9) at the expense of excess data in the network (para. 7, lines 8-11).

Advisory Action, pg. 2. Effectively, the Examiner is combining the system shown in

FIG. 2 of *Goringe et al.* with the acknowledged prior art system shown in FIG. 1 of *Goringe et al.* Applicants respectfully submit that it is not obvious or useful to combine a feature of the prior art (i.e., flooding a network with ping commands) with a system designed eliminate this very feature. Rather, the only motivation to combine these features is improper hindsight reasoning, using claim 1 as a template, in an attempt to arrive at the claimed invention. Accordingly, the Examiner's response in the Advisory Action does not cure the deficiencies of the original rejection.

Goringe et al. also discloses a system that appears to rely on retrieving information from border routers, which are routers that are shared by and include information about multiple regions. *See, e.g.,* paragraph [0023] ("Each area border router within a routing region has a complete copy of the database for all regions on whose border the router is located (or with which the area border router is associated)."). In contrast, claim 1 recites a probe logically connected to a router in each area and configured to receive link state routing protocol data and from the router in each area.

In addressing Applicants' argument, the Examiner stated, in part:

> [T]he border routers belong to more than one area and receive data from each router in respective area that it belongs (para. 23, lines 20-26). Further, routers that are not area border routers have information from each router its area (para. 23, lines 26-30) [sic.].

Advisory Action, pg. 2. However, claim 1 recites separate routers for each area. Because the border routers of *Goringe et al.* belong to more than one area, as acknowledged by the Examiner, the system of *Goringe et al.* does not teach or suggest each area including a router, and a probe logically connected to the router in each area.

C. Rejections Improper

For at least the reasons set forth above, Applicants respectfully submit that a proper *prima facie* case of obviousness has not been established because *Goringe et al.* does not teach or suggest at least one feature of claim 1. Therefore, claim 1 is patentable over the applied art, and claim 4, which depends from claim 1, is patentable for at least

the same reasons.

II. Rejection under 35 U.S.C. § 103(a)

Claims 5 and 8-18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Goringe et al.* (U.S. Patent Application Publication No. 2003/0043820) in view of *Greenberg et al.* (U.S. Patent Application Publication No. 2007/0165546).

A. Legal Standards

Applicants rely at least on the following standards with regard to proper rejections under 35 U.S.C. § 103. As provided in MPEP § 2143, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art cited must teach or suggest all the claim limitations.

In addition, under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. While the sequence of these questions might be reordered in any particular case, the factors continue to define the inquiry that controls. If a court, or patent examiner, conducts this analysis and concludes the claimed subject matter was obvious, the claim is invalid or unpatentable under § 103. *KSR Int'l Co. v. Teleflex Inc.,* 127 S. Ct. 1727; 82 U.S.P.Q.2D 1385 (2007), citing, in part *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

However, the Court in *KSR* continued: "A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. *See Graham*, 383 U.S., at 36, 86 S. Ct. 684, 15 L. Ed. 2d 545 (warning

against a "temptation to read into the prior art the teachings of the invention in issue" and instructing courts to "'guard against slipping into the use of hindsight'" (quoting *Monroe Auto Equipment Co.* v. *Heckethorn Mfg. & Supply Co.*, 332 F.2d 406, 412 (CA6 1964)). Moreover, if there is no suggestion to combine the teachings of the applied art, other than the use of Applicants' invention as a template for its own reconstruction, a rejection for obviousness is improper. *Ex parte Crawford, et al.* Appeal 20062429, May 30, 2007.

B. Final Office Action and Advisory Action

i. Independent Claim 5

Claim 5 is drawn to a system for monitoring link state routing protocol data, and features:

"two or more areas to be monitored, wherein each area includes a router; and a probe logically connected to and at least partially adjacent to the router in each area and configured to receive link state routing protocol data from the router in each area when the router in each area floods the link state routing protocol data throughout the autonomous system."

As discussed above with respect to claim 1, *Goringe et al.* teaches away from receiving link state routing protocol data when the routers to which a probe is connected floods the link state routing protocol data throughout the autonomous system. Likewise, *Goringe et al.* does not disclose a system in which a probe is logically connected to a router in each area and configured to receive link state routing protocol data and from the router in each area.

In addition, the Examiner acknowledged that *Goringe et al.* does not disclose probe location (i.e., at least partially adjacent to the router in each area), and therefore relied on *Greenberg et al.*, in combination with *Goringe et al.*, to teach this feature:

Greenberg discloses probes (fig. 1, 161-163) that have at least partial

adjacency to routers, where the probes establish adjacency (paras. 32-33).

Final Office Action, pg. 3. However, *Greenberg et al.* discloses that each area (i, ,j, k) of a packet-switched network 100 requires a separate, dedicated Link State Advertisements Reflector (LSAR) 161, 162 and 163, rather than a single probe servicing multiple areas. Therefore, *Greenberg et al.* does not teach a probe that is at least partially adjacent to the router in each area and configured to receive link state routing protocol data from the router in each area, as recited in claim 5. Rather, assuming without admitting that the LSAR discloses a probe, Applicants note that *Greenberg et al.* teaches multiple probes respectively connected to multiple routers in multiple areas.

In addressing Applicants' argument, the Examiner stated, in part:

> [T]he probe of Goringe communicates with at least one border area routers [sic] that is located within more than one area (para. 23, lines 20-26). Greenberg discloses that probes are located adjacent to routers (fig. 1). Therefore, the combination provides a teaching and motivation to locate the probes adjacent to the border area router in order to communicate with the router. Furthermore, the combination of Goringe in view of Greenberg also meets the claimed invention by the disclosure in Greenberg for having a centralized probe (fig. 1, LSAG; para. 15, lines 1-7).

Advisory Action, pg. 2. As an initial matter, Applicants disagree that the LSAG (Link State Advertisements Aggregator) of Greenberg et al. discloses a "centralized probe." The probe, as recited in claim 5, is logically connected to and at least partially adjacent to a router in each area and is configured to receive link state routing protocol data from the router in each area when the router in each area floods the link state routing protocol data throughout the autonomous system. The LSAG in *Greenberg et al.* is not at least partially adjacent to any of the routers 111-127, and does not receive link state routing protocol data from the routers 111-127 when they flood the system. The LSAG communicates only with the LSARs 161-163, and thus does not disclose a probe, as recited in claim 5.

Therefore, the combination of *Goringe et al.* and *Greenberg et al.* does not teach or suggest a single probe at least partially adjacent to a router in each area. Moreover, to

the extent *Goringe et al.* discloses a single probe, there would be no proper motivation to combine multiple probe adjacency teachings of *Greenberg et al.* (i.e., probes in each area) to a system having a single probe.

ii. Independent Claim 11

Claim 11 is drawn to a method for centralized collection of link state routing protocol data from a plurality of areas, and features:

"selecting a router in each area from which to collect link state routing protocol data corresponding to the area; and establishing a logical connection and at least partial adjacency between the selected router in each area and a probe to allow the probe to receive the link state routing protocol data from the selected router in each area."

In rejecting claim 11 under 35 U.S.C. § 103(a), the Final Office Action provides the same reasons as addressed above with respect to claim 5. Therefore, for substantially the same reasons discussed above, Applicants respectfully submit that the combination of *Goringe et al.* and *Greenberg et al.* does not teach or suggest a single probe at least partially adjacent to a router in each area. Moreover, to the extent *Goringe et al.* discloses a single probe, there would be no proper motivation to combine multiple probe adjacency teachings of *Greenberg et al.* (i.e., probes in each area) to a system having a single probe.

iii. Dependent Claim 12

Claim 12 depends from claim 11 and has been specifically addressed in the Advisory Action. Claim 12 is drawn to a method for centralized collection of link state routing protocol data from a plurality of areas, and features:

"configuring a plurality of sub-interfaces on the probe, the plurality of sub-interfaces corresponding to the plurality of areas; and configuring an IP tunnel from an interface on each selected router to the corresponding sub-interface on the probe."

In rejecting claim 12 under 35 U.S.C. § 103(a), the Final Office Action acknowledged that "Goringe does not disclose subinterfaces for probes," and relied on disclosure related to routers. *See* Final Office Action, p. 4. The Examiner further argued:

> Goringe provides interfaces with separate IP addresses that belong to different regions (fig. 1, item 104c; note: this router has links to routers in different regions that correspond to different IP addresses – figs. 4 and 8). The present invention notes that a sub-interface is based on connectivity to different regions (specification, page 8, lines 11-17) as similarly described in Goringe. Therefore, it would have been obvious to provide sub-interfaces to various regions in order to intercommunicate with these regions ….

Advisory Action, p. 2. However, the Examiner appears to equate the probe with topology generator 200 of FIG. 2. *See* Final Office Action, p. 3 (citing para. [0023] of *Goringe et al.*). The topology generator 200 is described as connected to the computer network through one access point, such as stub network 112. *See* para. [0023]. Accordingly, *Goringe et al.* does not disclose a probe having sub-interfaces. Other devices which access multiple "protocol regions" are the routers themselves communicating with other routers, not the alleged probe.

C. Rejections Improper

For at least the reasons set forth above, Applicants respectfully submit that a proper *prima facie* case of obviousness has not been established because the combination of *Goringe et al.* and *Greenberg et al.* does not teach or suggest at least one feature of each of claims 5 and 11. Therefore, claims 5 and 11 are patentable over the applied art, and claims 8-10 and 12-18, which depend, directly or indirectly, from claims 5 and 11, respectively, are patentable for at least the same reasons.

8. Conclusion

In view of the foregoing, Applicants respectfully request: the withdrawal of all

objections and rejections of record; the allowance of all pending claims; and the holding of the application in condition for allowance.

Respectfully submitted on behalf of:
Agilent Technologies, Inc.

/Van C. Ernest/
by: Van C. Ernest (Reg. No. 44,099)
Date: June 23, 2008

Volentine & Whitt, PLLC
One Freedom Square
11951 Freedom Drive, Suite 1260
Reston, VA 20190
Tel. No. 571-283-0720
Fax No. 571-283-0740

Appendix

Claims on Appeal

1. An autonomous system, comprising:

two or more areas, wherein each area includes a router; and

a probe logically connected to the router in each area and configured to receive link state routing protocol data from the router in each area when the router in each area floods the link state routing protocol data throughout the autonomous system.

4. The system of claim 1, wherein the link state routing protocol data is comprised of data describing a state and a cost of each link, router, and network within an area.

5. A system for monitoring link state routing protocol data, comprising:

two or more areas to be monitored, wherein each area includes a router; and

a probe logically connected to and at least partially adjacent to the router in each area and configured to receive link state routing protocol data from the router in each area when the router in each area floods the link state routing protocol data throughout the autonomous system.

8. The system of claim 5, wherein the link state routing protocol data is comprised of data describing a state and a cost of each link, router, and network within an area.

9. The system of claim 5, wherein the two or more areas are included in a single autonomous system.

10. The system of claim 5, wherein at least one area to be monitored is included in a first autonomous system and at least one area to be monitored is included in a second autonomous system.

11. A method for centralized collection of link state routing protocol data from a plurality of areas, comprising:

selecting a router in each area from which to collect link state routing protocol data corresponding to the area; and

establishing a logical connection and at least partial adjacency between the selected router in each area and a probe to allow the probe to receive the link state routing protocol data from the selected router in each area.

12. The method of claim 11, wherein establishing the logical connection with the selected router comprises:

configuring a plurality of sub-interfaces on the probe, the plurality of sub-interfaces corresponding to the plurality of areas; and

configuring an IP tunnel from an interface on each selected router to the corresponding sub-interface on the probe.

13. The method of claim 11, wherein establishing the logical connection with the selected router comprises:

configuring a physical interface on the probe for each area; and

creating a link from each selected router to the probe through the physical interface.

14. The method of claim 11, wherein establishing the at least partial adjacency between each selected router and ~~a~~ the probe comprises:

establishing a two-way adjacency between each selected router and the probe.

15. The method of claim 11, wherein establishing the at least partial adjacency between each selected router and ~~a~~ the probe comprises:

establishing a one-way adjacency between each selected router and the probe, wherein the probe only receives link state routing protocol data.

16. The method of claim 11, wherein the link state routing protocol data is comprised of data describing a state and a cost associated with each link, router, and

network within an area.

17. The method of claim 11, wherein establishing the logical connection and the at least partial adjacency between the selected router in each area and the probe comprises:

creating a route between the selected router in each area and the probe to allow the probe to receive the link state routing protocol data from the selected router in each area.

18. The method of claim 17, wherein the route between the selected router in each area and the probe comprises a single host route.

Appendix

Evidence (None)

Appendix

Related Proceedings (None)